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ABSTRACT

Needs assessment identifies "real world" problems to result in priorities for action. It is used for educational planning, but is inconsistently practiced and poorly researched. This paper describes how 14 novices conducted needs assessments and explains the outcomes. The research context was a year-long fellowship in medical education in which the 14 physicians conducted needs assessments in preparation for creating a medical curriculum. Twenty findings document: (1) activities conducted and sources contacted; (2) facilitating and hindering factors; (3) what participants learned about the process; and (4) changes to the product (curriculum) resulting from the needs assessment. The conceptual framework of C. Argyris and D. A. Schon for theories of action was used to derive four conclusions, which taken together, stress the ways in which theoretical and ideal needs assessments differ from "real world" needs assessment. The paper suggests methods practitioners across the professions can use to conduct needs assessments more effectively and efficiently. (Contains 7 tables and 32 references.) (Author/SLD)

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Needs Assessment:
What difference does (and can) it make?

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ABSTRACT

Needs assessment identifies "real world" problems which result in priorities for action. It is used for educational planning, but is inconsistently practiced and poorly researched. This paper describes how fourteen novices conducted needs assessments and explains the outcomes. Twenty findings document: 1) **activities** conducted and **sources** contacted, 2) **facilitating and hindering factors**, 3) what participants learned about the **process**, and 4) changes to the **product** (a curriculum) resulting from the needs assessment. Argyris & Schön's conceptual framework for theories of action was used to derive four conclusions. The paper suggests methods practitioners across the professions can use to conduct needs assessments more effectively and efficiently.

Nowhere is the presence of fervor and the absence of prescriptive detail more obvious than in the topic of needs assessment.

(Rossett, 1982, p. 28)

Whether it is called "needs assessment," "needs analysis," "front end analysis," "goal analysis," "task analysis," "strategic planning," or any of many other terms, there is general agreement that a systematic approach to problem solving includes an early phase in which data are collected and analyzed to identify and describe needs, those needs are prioritized, and potential solutions to the prioritized needs are generated. In this paper, the term "needs assessment" will be used to describe "any systematic approach to setting priorities for future action" (Witkin, 1984, p. ix), with a special focus on the use of needs assessment in education.

Needs assessment can have a far reaching impact. The concepts and techniques of needs assessment are applicable in many settings including education, business, industry, and public and private service agencies (Witkin, 1984; Kaufman & English, 1979). Also, needs assessment is important because it identifies the "problem" or "priority" that effort is to be expended on (Burton & Merrill, 1991; Geis, 1986; Mager, 1988). And finally, the parameters (or "values") used in the needs assessment to identify and select the problem also influence the rest of the process (Guba & Lincoln, 1982; Kaufman, 1977a). As such, needs assessment can enhance or impede the likelihood that a solution will yield substantive positive change.

However, there is a discrepancy between the theoretical use and benefits of needs assessment and its real world application. A major preoccupation in the literature is the continuing failure of needs assessment to fulfill its promise. It appears that needs assessments are often not well done or skipped entirely (Rossett, 1990, 1992; Roth, 1978; Wanamaker, 1986). And even when done, the results are rarely used in the later stages of the problem solving venture (Benjamin, 1989; Wanamaker, 1986; Witkin, 1984).

Furthermore, when people attempt to conduct needs assessments, problems often arise. The literature posits several reasons for these problems. First, there is no commonly held understanding of what needs assessment is. This is evident in debates over terminology and components of the process. Terminology describing the process differs drastically among authors (Rodriguez, 1988; Rossett, 1986; Sarthory, 1977; Sleezer, 1992; Trimby, 1979). To further confuse the would-be assessor, competing models present widely divergent representations of the process. In fact, there are so many models for conducting a needs assessment that a portion of the literature is devoted exclusively to comparing and contrasting models (Trimby, 1979; Wanamaker, 1986; Witkin, 1977, 1984) or presenting decision aids to guide the selection of an appropriate model (Cohen, 1981; Witkin, 1978a, 1978b).

A second problem when attempting to conduct a needs assessment relates to the significant, yet often unconscious, influence the person conducting the needs assessment has upon the process and results. The idea of "need" is vague, and what is classified as a need is likely to be highly dependent upon the values of the person conducting the needs assessment (English & Kaufman, 1975; Harless, 1985; Guba & Lincoln, 1982). Needs assessment can be conceived of as at least two types of decision making. Needs assessments result in decisions as to the *products*: the priority problems, causes and solutions. Also, each choice made by the person designing and conducting the needs assessment regarding methods to use, types of data to collect, who to consult, and in what order, can be considered decisions which make up the needs assessment *process*. The person conducting a needs assessment would be either consciously or unconsciously influencing both the process and the final outcome or product.

However, little has been done to close this apparent gulf between the theory and practice of needs assessment. Almost all of the literature on needs assessment is discursive in nature (Burton & Merrill, 1991). Although these insights are valuable in that they are often based on the author's own experiences and observations, remarkably little research has been conducted to substantiate the concerns or suggest tested ways to improve the process.

The first step in promoting the effectiveness and efficiency of needs assessment is to document current practice. Therefore, the purpose of the study reported in this paper was to describe how novices[1] conduct needs assessments and explain resultant outcomes. Three goals were identified to achieve the purpose of the study. The first goal was to develop an understanding of how needs assessment is practiced by describing the needs assessment process people use. The process can be understood in terms of the types and numbers of activities conducted, as well as the types and numbers of sources involved. A second goal was to identify what phenomena facilitate and/or hinder people as they perform needs assessments. Needs assessments cannot be carried out in isolation. Needs assessors must interact with other people and deal with environmental pressures to find valuable data, to analyze information, and, most important, to use the results. A third goal was to identify what people learn as a result of conducting the needs assessment. "Learning" was defined both in terms of the results obtained from the needs assessment (the "products"), as well as what was learned about needs assessment itself (the "process").

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[1] Novices were selected because 1) novices should be better able to describe what they are doing and why, than would experts (Ericsson & Simon, 1984); and, 2) by studying novices' first attempts at needs assessments, more could be learned about how to better prepare people to effectively and efficiently conduct needs assessments.

METHODS

The research context was a year long fellowship in medical education, in which primary care physicians from across the US and Puerto Rico developed their skills in teaching, research, curriculum development, and administration. The subjects of this study were fourteen physicians conducting needs assessments in preparation for creating a medical curriculum.

In this qualitative study, data were collected and analyzed in four phases spanning a ten month period. Data included observations, interviews, and documents generated by the participants before, during, and after they received training for and conducted their first needs assessments. The data collection methods and phases of data collection and analysis are detailed in Table 1 "Phases of the study." Care was taken to collect data that sampled across time (ten months), people (14 participants as well as people interacting with them), and contexts (formal and informal situations, in the training site and while at their home organizations).

Three levels of data analysis were conducted over the phases of the study. The first level of data analysis consisted of repeatedly reading the data set to generate, apply, and modify codes. The second level of analysis occurred during phases III and IV and consisted of constructing individual case studies from all the data gathered for a participant and comparing cases to generate tentative findings. The third level of analysis occurred in phase IV. It consisted of a comprehensive review and comparison of all data collected in the study according to the constant comparative method of data analysis. The third level of analysis closely followed the operations of unitizing, categorizing, summarizing, and conducting member checks as described by Lincoln & Guba (1985) and Miles & Huberman (1984).

Findings were generated and verified by a process of comparative analysis which involved categorizing data through convergent and divergent processes. First, data were converged into categories describing phenomena relevant to all the data contained within the category. Then, in a divergent process, the data were reviewed and each of the categories were refined until they accounted for all the relevant data and excluded all other data in other categories. The entire data set for each participant was searched for instances of supporting and contradictory evidence prior to attributing a discovery to that individual. This means that in tables 3 and 4 every item attributed to an individual (usually indicated by a check mark) is based on a minimum of one source of evidence from observations, interviews and documents with no contradictory evidence from these sources. Discoveries for each participant were then compared across all fourteen participants.

Readers are urged to consider the context and participants of the study when evaluating the transferability of findings to their own context. It is especially important to remember that the study was executed in a training situation in which the participants

Table 1

Phases of the Study: Data Collection and Analysis

Time	Purpose	Interviews	Observation	Documents
Phase I: **Before Learning About NA** (6 months in home org., 1 1/2 weeks on site)	Data collection: Enter site and collect general data on context and background of participants (Ps)	*Through informal interactions Emphasis on relationship building and developing trust	At selected points in time during session: * Workshops * Lunch periods * After hours	* Application * Site visit report * Needs Assessment (NA) questionnaire to all Ps * Draft idea of major project (develop a curriculum) * Copies of some workshop exercises
	Data Analysis (First Level): Read through early data to become familiar with Ps and context, and to discover "holes" where more data is needed			
Phase II: **While Learning About NA** (3 days on site)	Data collection: * Ps learning about NA * Ps designing NA	* Informal interactions Asking elaboration on Ps' comments and behaviors related to NA	* NA workshop (1/2 day) * Feedback session in which NA workshop is evaluated * Other times during session	* Copies of exercises generated during NA workshop
Phase III:	Data Analysis (First Level): * Examine Phase I & II data to construct interview guides			
Doing the NA (6 weeks in home org.)	Data collection: While Ps are in process of conducting NA at home institution	* Phone interview with participants * Interviews with faculty who are mentors of Ps		
	Data Analysis (Second Level): * Post interviews, begin to construct cases and compare them to generate tentative hypotheses			
Phase IV: **Applying NA to Curriculum** (1 week on site)	Data collection: On process and outcomes of now completed NA	* Informal interactions.	* Selected points in time during session * Tape mentor group meeting discussing needs assessment process and outcomes	* Written NA report * Annotated Bibliography assignment
(12 weeks in home org.)	Data collection: Through informal interaction with Ps and faculty to add details, clear up confusions	* Phone conversations with Ps * Conversations with faculty		* Written commitment on major project (type of curriculum to be developed)
	Data Analysis (Second Level): * Construct individual case stories and compare for patterns and trends * Identify hypotheses to be checked in final phase of data collection			
(1 week on site)	Data collection: * Seek confirming & disconfirming evidence of hypotheses * On personality types	* Informal interactions * Exit interview	* Workshop on personality types * Selected times during session	* Curriculum document * Personality type indicator results
(16 weeks in home org. and final 1 week on site)	Conduct member checks	* Phone conversations * Individual member checks (final week) * Presentation of study hypotheses to Ps (final week)	* P's Conference presentations	
	Data Analysis (Third Level): * Full blown analysis with member checks			

"NA" = Needs Assessment "P" = Participants

were required to conduct and report upon a needs assessment in a fixed amount of time (6 weeks) for the purpose of developing a medical curriculum. It may also be important that the participants were novices to needs assessment, working alone to conduct needs assessments in their home organizations, and that they were often experts in the subject matter area of the curriculum. Study findings should most readily transfer to similar contexts and types of needs assessors.

RESULTS

Twenty findings summarize the needs assessments of the fourteen study participants. These findings are grouped and reported according to the three major goals of the study (see Table 2). As space precludes detailed reporting of all findings, only selected findings will be highlighted in this paper.[2]

What did the participants do in conducting a needs assessment?

Seven findings were generated in answer to this first question. How the fourteen participants conducted their needs assessments was largely answered by examining the methods they employed as well as the sources they consulted. A summary of the needs assessment activities for each participant is presented in Table 3. The participants are listed in Table 3 according to the number of activities performed with those performing the same number of activities listed according to the degree of effort expended on each activity.[3]

Assessors did not have a clear starting and ending point when conducting a needs assessment (Finding #1). The columns of Table 3 labeled "prior to" and "after" indicate the frequency with which participants conducted needs assessment related activities outside of the prescribed six week period for the needs assessment assignment. Participants were initiating activities that qualify as needs assessment before they were formally introduced to the process, and about half continued with needs assessment activities after the required assignment was completed.

Approximately half of the participants used the word "informal" in describing what they had done before they had learned of the needs assessment assignment. A common trend in all of the early activities was the participants' desire to "get a handle on things." Participants spoke of looking for literature because they "wanted to find out what was out there." Those who mentioned talking to colleagues spoke in terms of getting input on the topic for the curriculum they would create and/or refinements for the curriculum they already had in mind. As an example of the first situation, Max said

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[2] A detailed description of the entire study can be found in Csete, J. M. (1994) A Qualitative study of needs assessment: The gulf between theory and practice (Doctoral Dissertation, Michigan State University, East Lansing).

[3] Pseudonyms have been used to maintain confidentiality.

Table 2

Study Findings

#1: What do the participants do in conducting a needs assessment?

Finding 1:	Needs assessment did not have a clear beginning and ending.
Finding 2:	Taking a block of time to plan was the most effective way to begin the needs assessment.
Finding 3:	Assessors used informal and less structured activities more often than formal structured activities when conducting needs assessments.
Finding 4:	Assessors did not involve representatives of every stakeholder group in the needs assessment.
Finding 5:	Data collection was focused on sources most like the assessors themselves.
Finding 6:	Data collection was focused on sources within the assessor's immediate context.
Finding 7:	The purpose of the contact, and the data collection approach used, was dependent upon the type of source being contacted.

#2: What factors facilitate and/or hinder the needs assessment process?

The Individual Needs Assessor

Finding 8:	Needs assessments were hindered by the vagueness of the concept for beginners.
Finding 9:	Needs assessments were hindered by unexpected time demands and delays.
Finding 10:	Needs assessments were facilitated by assessors possessing moderately high expectations.
Finding 11:	Needs assessments were facilitated by the presence of key skills in the assessor.
Finding 12:	Needs assessments were hindered by a too wide or too narrow focus.

The Training Program

Finding 13:	Needs assessments were facilitated by timely access to helpful materials and human resources.

The Home Organization

Finding 14:	Assessors demonstrating a belief in internal control perceived fewer difficulties in conducting the needs assessment.
Finding 15:	Assessors who were flexible experienced fewer difficulties in conducting the needs assessment.

#3: What do participants learn about the process and products of needs assessment?

Finding 16:	Needs assessment concepts were clearer after assessors experienced the process.
Finding 17:	Participants perceived two key benefits from conducting a needs assessment.
Finding 18:	Participants clearly defined conditions under which they would perform needs assessments in the future.
Finding 19:	There were few changes to the curricula as a result of the needs assessment.
Finding 20:	Assessors had decided upon the problem and solution before beginning the needs assessment.

"We've talked about this all year, not anything formally, but in talks between ourselves, or it has come up in meetings. Now I'm going to have a questionnaire for them to answer." As an example of the second, Rubin said, "Talking to people about what I wanted to do helped me verbalize my vision....every time I told it to someone, it got easier." It appears that a lot of informal data collection, and idea generating and testing goes on before a person ever begins "doing" the formal needs assessment.

Table 3

Needs Assessment Related Activities

	PRIOR TO	DURING NEEDS ASSESSMENT ASSIGNMENT							AFTER	
						Documents				
	Before Training Began	Literature Review Required	Meetings/ Informal Talks	Contact Experts[6]	Written Survey	In Context	External	Guided Interview	Talked to People	More Readings
Max	✓	✓	✓	✓(i)	✓	✓	✓	✓		✓
Joan	✓	✓	✓	✓(i+e)	1	✓	✓	✓	✓	
Mike	✓	✓	✓		✓	✓	✓	✓	✓	
Julie	✓	✓	✓	3	✓	✓	✓	✓		
Rubin	✓	✓	✓	✓		✓		✓	✓	✓
May	✓	✓	✓	✓	✓			✓		
Emma		✓	✓	✓	✓	✓	✓			
Bill	✓	✓	✓	✓(u)	✓		✓		4	4
Sue		✓	✓	✓	✓				✓	
Alexis	✓	✓	✓	✓(u)(i+e)	✓					
Sam	2	✓		✓	✓5	✓	✓			
Eve		✓	✓	✓(u)	✓					
Rachel	✓	✓	✓							
Erin	✓	✓	✓			1				

Key:

1: Did prior to needs assessment assignment
2: "A lot of the stuff for this curriculum was already set."
3: "I considered contacting some experts, but what they think is already in the literature."
4: Bill left the training program shortly after completing the needs assessment, and could not continue work on this curriculum
5: Sent out surveys but none were returned
6: Experts outside own organization unless noted as below

(i) Contacted experts internal to the organization
(i+e) Contacted both internal and external experts
(u): Urged by fellowship faculty to contact experts

Assessors used informal and less structured activities more often than formal structured activities when conducting needs assessments (Finding #3). In Table 3, the seven major needs assessment activities performed by the participants during the assignment period are listed from left to right according to frequency. Each of the activities can be categorized according to the approach participants took. Three of the seven qualified as structured formal activities because they included advanced consideration of the types of information to be sought, methodical collection of data from sources, and a documented analysis process. The literature search, written surveys, and guided interviews fit this category. The remaining four activities conducted during the needs assessment assignment period qualified as informal. For the more informal approach, participants did not report written advanced preparation, documentation of the data gathered, or the analysis process. Holding meetings, informal talks, contacting experts, and examining documents were activities that fell under the informal approach. It should be noted that this difference was not associated with the level of formality of the interaction with the respondent--both categories included "catching people in the hallways" as well as calling ahead for appointments.

There were 30 total instances of structured formal activities among the fourteen participants (14 being the required literature review) in contrast to 37 instances of less structured informal activities (none of which was required). Setting aside the most frequent activity, the formal literature review, the two next most frequent activities were informal in nature. In addition, there was considerable variability in the "formality" with which surveys were designed, conducted and analyzed. Six of the ten participants using surveys reported having drafts reviewed and making revisions prior to disseminating them. Three other participants openly admitted typing up the surveys "in a few minutes" without reference to other materials. The review of techniques used suggests that, unless specifically required, assessors tend to prefer informal activities such as talking with people and perusing documents over more formal activities which structure data collection and analysis and require written documentation.

Assessors tended to base a greater proportion of the needs assessment upon particular types of sources (Findings #4 - #7). The sources participants consulted during the six week assignment period are displayed in Table 4. In the needs assessment training session participants generated lists of people likely to be affected by the curriculum they were to create. Participants recognized a variety of groups as stakeholders in the intended curriculum, and each of the stakeholders were contacted as sources with the exception of one group: patients (Finding #4). Seven of ten identified patients as being affected, but none incorporated them into the needs assessment process. This is true even for more than half of the cases in which students and residents would be learning in the curriculum by practicing their skills on patients. Findings #5 and #6 suggest a reason: patients were not consulted because the

participants perceived patients as being only distantly related and outside the immediate context.

Participants tended to collect data from sources with which they had the most in common (Finding #5). Participants saw their peer faculty members, other academic physicians, as people that should be involved in the needs assessment. Similarly, their learners, people who were soon to become physicians, were also seen as stakeholders in all instances. With only one exception, in which current learners were not available, all fourteen participants collected information from both peer faculty and learners.

Table 4

Sources Consulted

	PEOPLE						PRINTED MATTER		
	In Own Environment					External	External		Internal
	Peer Faculty	Current Learners (Student or Resident)	Local Superior	Support Staff	Graduates	Experts ("E") Distant Peers ("P")	Literature **Required	External Documents	Internal Documents
Mike	✓	✓	✓	✓	✓		✓	✓	✓
Joan	✓	✓	✓		✓	✓E	✓	✓	no evals ✓
Max	✓	none available	✓		✓	✓EP	✓	✓	✓
Julie	✓	✓	✓		✓		✓	✓	✓
May	✓	✓		✓	✓	✓E	✓		no evals
Rubin	✓	✓	✓			✓E	✓		✓
Bill	✓	✓	✓	✓		✓P	✓		
Emma	✓	✓				✓E	✓	✓	✓
Sue	✓	✓	✓			✓P	✓		no evals
Rachel	✓	✓	✓	✓			✓		no evals
Eve	✓	✓	✓			✓P	✓		no evals
Erin	✓	✓		✓			✓		3
Alexis	✓	✓1		✓		✓E	✓		no evals
Sam	✓2	✓2	✓			✓P	✓	✓	✓

1: Surveyed populations that were not intended learners (others may have surveyed faculty, but always also included intended learners)
2: Main activity for both these sources was a survey which was never returned
3: Looked at evaluations prior to beginning NA

"no evals": No evaluation data on learners or curriculum available
"E": Contacted "experts" identified from literature or from references
"P": Contacted "peer" faculty in similar positions at other institutions

There was progressively less recognition and involvement of people that held roles less similar to the participants'. Ten of the fourteen participants contacted a local superior, another physician of a higher rank in the organization, but this was sometimes for political reasons rather than to actually collect needs assessment data. Non-physicians in the local environment (nurses, medical assistants, or clerical staff) were less often consulted, even in cases where they would have significant involvement in making the curriculum work. When interviewed in the midst of conducting his needs assessment, one participant stated that he was including support staff almost as an afterthought: "And last, I'm gonna ask the office staff -- nurse practitioners and nursing staff- what they think...I didn't think of doing that until yesterday, but it occurred to me that I should...." Months later, this participant acknowledged that he did not see support staff as providing critical input:

> What I really did was take a second pass, hitting some of the people not interviewed in the first pass, because I didn't care what they thought then. These were people with no power to stop me, but I did the second pass because I wanted to make sure they'd be happy with what I'd come up with, before it's totally dropped on them as "this is something you have to do."

When considering stakeholders outside their own organization, participants continued to focus on the medical community. When contacting people outside their own organization, only one participant contacted a non-physician. Also, participants showed a tendency to contact other members of the medical community with whom they had the most in common. As seen in Table 4, five of the ten participants contacting people outside their own organization contacted medical faculty in similar positions at other medical institutions (marked with a "P," for "peer," rather than "E" for "expert" in the published literature).

Participants demonstrated the same trend of relying on sources most like themselves when searching the literature. With one exception, all of the participants limited their searches to the medical literature (although several were working on psychology or sociology related topics). Participants also displayed a tendency to limit their searches of the medical literature to information listed within their particular specialty. For example, a pediatrician expressed hesitation in looking at guidelines for pediatric training published by a family medicine organization (both provide care for children).

In summarizing Finding #5, the participants recognized stakeholders and contacted sources that were most like themselves. Most often, peer faculty were consulted and collection of data from learners (soon-to-be physicians) was a new idea that was accepted by the participants. There was a reluctance to use sources in other

specialties of medicine; also, there was almost no contact with sources outside the realm of medicine.

Participants also most often collected data from sources within their immediate context (Finding #6). Among the range of people and printed matter sources from which participants collected information, six of the sources were contained within the participants' immediate environment, and three were external to it. The balance of the effort expended on needs assessment rested with internal sources. There were 55 total instances of contacting internal sources among the fourteen participants, in contrast to 30 instances of consulting external sources (14 being the required literature review). Participants often indicated a reluctance to contact external sources, citing difficulty in contacting those sources and concerns as to how they would be received. The number of external sources contacted may be overrepresented as there was an element of coercion. The training program required a literature review, and staff from the training program often urged participants to contact people outside their institution or consult external documents, sometimes going so far as to name a person and provide a phone number.

Participants showed a tendency to choose a more or less structured or "formal" approach depending upon the source they were contacting (Finding #7). In general, formal documented methods were most often used with local sources most like the participants. For example, written surveys were used with both peer faculty and students by eight of the ten participants that conducted surveys. In contrast, more informal and undocumented methods were more often used with sources less familiar or similar to the assessors. In four of the six instances in which support staff were consulted, informal talks were conducted and there is no written documentation of what was asked or said.

Participants also indicated in interviews and documents that they were not looking for the same type of information from all sources (Finding #7). The major purposes were to assess *support* for the project and to collect input on *content*. To a lesser degree, *instructional strategies* were also solicited. Peer faculty were consulted for both support and content. Learners were consulted for support and, to a lesser extent, content suggestions. Other sources in positions less like the participants' were contacted for more political rather than data collection purposes: superiors to maintain their support for the project, support staff most often (almost as an afterthought) to secure their support by making them feel they had some input. The majority of formal written data collection and analysis was conducted with data collected from peer faculty, learners, and graduates.

What factors facilitate or hinder the needs assessment process?

Eight findings on this second question were derived by comparing and contrasting the needs assessment experiences of the fourteen participants. The factors that facilitated or hindered the needs assessments occurred on the levels of 1) the individual needs assessor, 2) the training program, and 3) the home organizations of the participants. Consistent patterns were found in which participants who expressed frustrations related to needs assessment were thinking and/or behaving differently than those who were not expressing as much frustration with the process. Two findings related to the individual needs assessor are briefly described below.

Needs assessments were hindered by unexpected time demands and delays (Finding #9). The factors that facilitated or hindered the participants' needs assessment were related to time on task, start time, and participants' time concerns. First, needs assessments were, within limits, facilitated by greater time on task. Assessors reporting fifty or more hours on their needs assessments used more needs assessment methods and contacted a greater variety and number of sources. However, there appeared to be a limit to the benefits of increased time on task, as expenditures of close to a hundred hours did not necessarily result in more comprehensive needs assessments than those in which 50 hours were spent (also supported by findings #11 and #15). Second, in cases in which needs assessments were started earlier, they were more comprehensive. Assessors who delayed the needs assessment spent less time on task, conducted less comprehensive needs assessments, and worried more about being able to complete their need assessments. Finally, participants reported three different types of concerns related to time which hindered their needs assessments. They were: 1) surprised by how much of their own time needs assessment activities required, 2) hampered by limitations in other people's time, and 3) were slowed down by time delays.

In fact, in interviews conducted midway through the needs assessment period, ten of the fourteen participants described time as the most important and often the only problem experienced. Julie's response, when asked what problems or concerns she was experiencing in the needs assessment, captured what most of the others also expressed:

> Put this in capital letters - TIME...it takes so long...I had not anticipated needs assessment would be so involved, nor had I anticipated how much start up time would be needed. It took me the better part of a WEEK just getting the surveys prepared and formatted so I could get them out....I had absolutely no idea needs assessment would be so involved.

Many of the participants spoke of being surprised by how much of their own time needs assessment took. They had estimated that it would take much less time to accomplish each activity. In particular, many of the participants spoke of how long it took to create questionnaires, and how much time they had spent on administrative tasks such as distributing the questionnaires or setting up interviews.

Needs assessments were facilitated by the presence of key skills in the assessor (Finding #11). There was a clear differentiation in particular skill areas between needs assessors who described problems and frustrations during the needs assessment process and those who did not. Key skills which facilitated the needs assessment process were: time management, change gentry, and bias controls in data collection and analysis.[4] Assessors demonstrating poorer time management skills experienced more difficulty in finding time to work on their needs assessments and in conducting the needs assessment in ways that maximized the time available. In particular, time management skills made a significant difference in facilitating the needs assessments in cases where *less* time was available. Those skilled in time management nonchalantly reported conducting their needs assessments in the midst of their usual daily activities. For example, one participant interviewed his learners a few minutes at a time when they were "hanging around" in between seeing patients. Two other participants handed their surveys out at meetings at which most of the respondents were present.

Needs assessments were facilitated by assessors who recognized the relationship between needs assessment and change, and were equipped to employ change agentry strategies. For example, one participant described many conflicts with others in her organization rising out her needs assessment activities. These conflicts could be attributed, at least in part, to her lack of knowledge and skill in change agentry. In what was designed to be a needs assessment meeting with key stakeholders, the participant made others aware of the current deficiencies of the system they had created, without also devising a graceful way for them to fix the problem without embarrassment or too much additional effort. She expressed surprise that committee members did not 'jump at the chance to fix the problem," and also said she was hurt that "Two of the people that were in that meeting--it seems like they're avoiding me now." In contrast, other participants almost unconsciously incorporated change strategies into their needs assessment process, as demonstrated in behaviors such as continually talking to people to "keep key people informed" about what is being learned over the course of the needs assessment.

Finally, all of the participants failed to follow one or more common procedures for bias control in data collection and analysis. In some instances, participants later

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[4] Time management and change agentry skills were ascribed to participants based on consistent patterns in behaviors and statements. The investigator suggests administering instruments measuring time management and change agentry skills to participants in future studies.

learned that not having followed these procedures hindered the needs assessment process. And in many more cases, participants assumed the correctness of their conclusions, when experts would question their conclusions based upon the faulty data collection and analysis process. Instances in which bias was not controlled were most evident in the surveys, because this method was documented. Common bias control problems were 1) asking leading questions of respondents, 2) not reviewing or piloting data collection instruments, and 3) making assumptions based upon low response rates in surveys. In addition, needs assessment conclusions were usually reported without providing supporting data.

What did participants learn about the process and products of needs assessment?

What participants learned about needs assessment was answered by looking at: 1) what participants learned about the *process* of needs assessment, including the circumstances under which they would voluntarily elect to conduct needs assessment again; and 2) the *products* of needs assessment, as expressed by changes to the participants' curricula as a result of having conducted the needs assessment. Four of the five findings generated in response to this question are briefly described below.

Participants' perceptions of the benefits of needs assessment. Participants learned that contacting a variety of sources during the needs assessment were useful for 1) collecting ideas and 2) gaining support (Finding #17). They perceived the ideas they collected from these sources as making their curricula *better*. Also, they discovered that by asking people for ideas, they gained support, making their curricula *more likely to succeed*. In addition, it appears that early collection of ideas from a variety of sources simplifies the later stages of development and implementation.

Second, participants clearly defined conditions under which they would perform subsequent needs assessments (Finding #18). All the participants said they would conduct needs assessments in the future. However, they defined conditions which limited the circumstances under which they would choose to do one. They said they would do needs assessments in situations in which they needed to establish or assess support for an idea, and in areas that were new to them. Participants felt that needs assessments were less useful in areas in which they already had expertise. They further indicated that in the future they would not expend as much time and energy on defining the problem and identifying a solution. Instead, they would use the needs assessment to determine how to implement their "best guess."

The effect of needs assessment upon the final product. There were few substantial changes to the curricula as a result of needs assessment (Finding #19). Changes related to topic, content and instructional format were minimal. An examination of documents generated before and after the needs assessments were

conducted revealed that eleven of fourteen participants did not change their curriculum topic as a result of the needs assessment. In two of the three instances in which "change" was reported, the participants had used the needs assessment to collect input on how to narrow the topic. In one instance a participant reported discovering during the needs assessment that there was a much more pressing need for a different curriculum.

Needs assessment showed slightly more promising results in the area of selection of content and instructional methods. Ten of the fourteen participants gave evidence of using the needs assessment to help them select content for the intended curriculum. One talked about the needs assessment "moulding" her content, and another said that he had discovered a "new philosophy" that guided content selection. One participant's comment illustrates how the needs assessment usually led to relatively minor changes in content [emphasis added]:

> I definitely had some clear ideas about what I thought should be included. But when I talked to people, a couple of residents or the graduates clearly said 'no' or emphasized other things. They definitely emphasized some other things. And that made me feel good. It was like I was truly being open minded, that I could incorporate what they were telling me. **But there weren't many major shifts. It was more like small but significant stuff.**

Eight of the fourteen participants used the needs assessment to help them select or refine ideas on how to teach and/or evaluate the curriculum. As had happened with content, in most of these instances the needs assessment led to minor modifications rather than new ideas.

And finally, it appears that assessors had decided upon the problem and solution before beginning the needs assessment (Finding #20). The needs assessment did not *find* a solution. Instead, the solution had been determined prior to the needs assessment. A close examination of participants' written statements of intention both before and after the needs assessment reveals that: 1) there was only one instance of a topic changing between before and after the needs assessment, and 2) the majority of participants had selected a topical area, from which they did not deviate, months before they entered the training program and began the needs assessment. Returning to what was reported in the first finding, participants had done what could be considered an "informal needs assessment" to decide upon which problem to work and its solution prior to entering the training program. Rather than resulting in changes, the needs assessment confirmed and refined these decisions. As one participant said:

> I'll be honest with you, [the needs assessment report is] just a document. I already had a good idea of what I needed. There are only a few areas where I have found things that were not expected.

In reviewing the results of the study, findings for the 14 participants generally support the concerns expressed in the literature over needs assessment being poorly understood and unevenly practiced. The following discussion presents a conceptual framework for interpreting the findings, the four major conclusions of the study, and general recommendations for improving the effectiveness of needs assessment.

DISCUSSION

The conceptual framework

A conceptual framework is useful for organizing a study's findings into a comprehensible structure. In the present study, the conceptual framework was taken from the work of Argyris & Schön. In Theory into Practice (1974), Argyris and Schön address the practice and education of professionals. They have studied the interpersonal interactions of professionals such as physicians, social workers, and city planners to develop a theory of how people can become more competent and effective. Argyris and Schön describe a conceptual framework in which humans behave according to theories of action, which are divided into espoused theories and theories-in-use. They further describe a process by which these theories are maintained or modified through single-loop and double-loop learning and present two models for human interactions.

The most important features of this conceptual framework to the present study are the following:

1) What people think they do (espoused theory) can differ markedly from what they actually do (theory-in-use) without their being aware of the conflict.

2) People's behavior can be described by a model (theory-in-use) which includes a system of constructs (governing variables and action strategies) to bring about the consequences they desire (maintaining governing variables).

3) There are at least two kinds of learning and changing: one which maintains and refines the status quo (single-loop) and one which establishes new norms (double-loop). Both types of learning are necessary. Single-loop learning is useful for day-to-day adjustments; double-loop learning results in more fundamental changes and is essential for maintaining long-term effectiveness.

4) People's assumptions and behaviors may be predicted and explained by models (theories-in-use). There are two different models. In Model I people seek to control others without being influenced in turn, resulting in a highly defensive situation with decreased effectiveness and little opportunity for learning. In Model I little change occurs until the situation reaches crisis proportions and an enormous change, often of revolutionary proportions, results. Model II, which is largely theoretical, increases capacity for learning and effectiveness. It allows for the public testing of assumptions with honest feedback so that double-loop learning can occur.

Argyris and Schön's conceptual framework provides a more accurate understanding of reasons for current needs assessment practices and suggests how to design more effective needs assessment practices.

Study Conclusions

The major conclusions of the study were derived by interpreting the twenty findings according to the conceptual framework. The conclusions for each of the research questions are presented in Table 5.

Table 5

Study Research Questions and Conclusions

Research Question	Conclusion
1. What do the participants do in conducting a needs assessment?	1. The needs assessment procedures prescribed in the literature are different from how they were actually carried out in the real world.
2. What factors facilitate and/or hinder the needs assessment process?	2. The literature and formal training of needs assessment concentrated on the ideal, rather than a comprehensive set of practical procedures that could be used to cope with constraints in real settings.
3. What do participants learn in doing a needs assessment? a. about the process b. about the products	3a. The benefits of needs assessment perceived by the participants differed from those described in the literature. 3b. The results of the needs assessments were not as far reaching and change stimulating as suggested in the literature.

Four arguments support and explain the conclusions, drawing from the findings and the conceptual framework. The arguments are:

One: An espoused theory of needs assessment is described in the literature, and by the training situation and participants.
Two: Needs assessment as practiced by the participants is a theory-in-use.
Three: Differences between the espoused theory and theory-in-use of needs assessment create conflict.
Four: There may be a way to bring the espoused theory and theory-in-use of needs assessment into agreement.

Each argument will be presented in turn.

Argument One: An espoused theory of needs assessment is described in the literature, and by the training program and participants. According to the criteria presented by Argyris and Schön, the goals, models and techniques for conducting need assessment as described in the literature represent an espoused theory of needs assessment. It fits the criteria by being a set of rules people state about needs assessment that is not based on observation or verified by empirical research. Two of the tenets of the espoused theory of needs assessment are: 1) needs assessment is conducted in order to arrive at the priority problem and an appropriate solution; and 2) a needs assessment is to be conducted with the intent of better serving society as a whole ("Alpha needs assessment"). These tenets are to be accomplished through the strategies presented in the literature. Example strategies include: (most often) using a discrepancy approach to identify needs, distinguishing needs from wants, collecting data from a variety of stakeholders, and so forth.

The training situation presented an espoused theory of needs assessment in formal sessions and materials which was closely related to the theory espoused in the literature. Examples include claims of the benefits and importance of needs assessment. The espoused theory was evident in training staff's public references to needs assessment as an important early step in a systematic curriculum development process, and in the needs assessment workshop handouts.

Participants also possessed an espoused theory of needs assessment. This espoused theory was evident in formal documents, public presentations and in statements in interviews. In most cases the participants stated an espoused theory that closely matched that described in the literature. As an example of what their espoused theory included, participants described how it was important to contact a variety of sources in their needs assessments (Finding #18).

Needs assessment, as espoused in the literature, the training situation, and by the participants, approximates Argyris and Schön's Model II. As in the first governing

variable in Model II, the intent of needs assessment is to collect valid information. This is accomplished through involving stakeholders in the data collection and prioritizing process. Similar to the second governing variable in Model II, needs assessment is designed to involve others on the basis of their own free and informed choice. This leads to the third governing variable in Model II. Needs assessment, as espoused, contains the belief that by being involved in the process, stakeholders will be committed to the decisions that come out of the needs assessment; they will monitor the solution's progress, as they have a vested interest in its successful implementation.

The espoused theory of needs assessment is aimed at achieving double loop learning. The three governing variables of Model II lead to double loop learning (fundamental changes in the existing norms). In the literature, needs assessment is described as the initial stage of any planning effort which lays the groundwork for effecting lasting and positive change. It is to be used as a planning tool by questioning the status quo and proactively designing new systems and strategies that will bring substantial improvements.

Argument Two: Needs assessment as practiced by the participants is a theory-in-use. The theory of needs assessment, as espoused in the literature, the training situation, and by study participants, was not in agreement with the theory-in-use employed by the participants when they actually conducted needs assessments. The theory-in-use for needs assessment operates according to a different model, contains different governing variables, and results in a different outcome for learning and change.

The theory-in-use for needs assessments more closely ascribes to the governing variables of Argyris and Schön's Model I than Model II. This is illustrated by findings that lead to each of the governing variables. The first governing variable of Model I is "*Define goals and try to achieve them.*" This governing variable assumes individuals will construct their own goals and avoid being influenced by others. Several of the findings support this governing variable. Finding #20 describes how the participants had already decided upon the priority problem and the solution prior to beginning the needs assessment required by the training program. Finding #19 demonstrates there were few changes to the final product as a result of the needs assessment. Thus, the needs assessment substantiated the participants' own original ideas.

A combination of findings made it unlikely that the participants would be confronted with data that would contradict their own ideas. In findings #3 through #7, descriptions of methods used and sources contacted by the participants in the needs assessment were presented. These findings showed that assessors collected data from sources most like themselves (#5) and completely ignored a particular stakeholder group (#4). Assessors also focused data collection on sources within their own immediate environment (#6). By limiting their exposure to sources in different roles

that might have a different perception of the problem, or in different contexts that might have alternate approaches to solving the problem, the assessors were less likely to hear opinions that were very different from their own. A further layer of protection was added through differences in data collection methods. As described in findings # 3 and #7, assessors used structured methods that documented responses with sources that were most like the assessors and/or within the assessors' own contexts--they used less structured, undocumented methods with sources less like themselves and from other contexts. Thus, when assessors analyzed the data, they were less likely to be confronted with written data that would conflict with their own ideas.

The second governing variable in Model I is "*Maximize winning and minimize losing*." Argyris and Schön said that "[p]articipants felt that once they had decided on their goals, changing them would be a sign of weakness" (1974, pp. 66-67). Thus "winning" consisted of ensuring that their original goals would be accepted. In the present study, participants employed behaviors that made it more likely that they would "win." The findings listed under the first governing variable illustrate how the assessors ultimately "won" in the sense that the needs assessment validated their preferred solution. The findings also suggest that the needs assessment was conducted in more subtle ways that favored the assessor. An example is the lack of bias controls described in Finding #11. By asking leading questions and accepting a low response rate on questionnaires, participants were biasing data in their favor. Also, by not presenting hard data in the needs assessment reports, participants were not allowing others to question how their conclusions had been determined.

The third and fourth governing variables of Model I are "*Minimize generating or expressing negative feelings*" and "*Be rational.*" These governing variables assume it is better to avoid areas of possible conflict than to uncover painful emotions, even if they are closely associated with accurate and pertinent information. These variables require assessors to hold back their own feelings and avoid areas in which others may have strong feelings. In the present study, participants gave many examples of behaviors that could be accounted for by these governing variables. These behaviors were often related to the "political" purposes of needs assessment. For example, Findings #5 & #11 include descriptions of how participants collected data they never intended to use for the sole purpose of making sure these sources would not be hurt (and, going back to the second variable, so they wouldn't oppose the participants' intended solution).

This contrast between the espoused theory and theory-in-use of needs assessment results in Conclusion 1: The needs assessment procedures prescribed in the literature are different from how they were actually carried out in the real world. The difference between the major tenets of the espoused theory and those of the theory-in-use of needs assessment are summarized in Table 6.

Table 6

Sample Comparison of Espoused Theory and Theory-in-use of Needs Assessment

Theory Espoused in Literature and by Training Situation and Participants	Theory-in-use Displayed in Behavior of Participants
Needs assessment is conducted in order to arrive at the priority problem and an appropriate solution.	Participants had already decided upon the priority problem and the solution prior to beginning the prescribed needs assessment. (Finding #20) The prescribed needs assessment did not result in significant changes to the assessor's original problem and solution. (Finding #19) The needs assessment was conducted in a way to avoid the assessor being confronted with contrary data. (Findings #3,4,5,6,7)
A needs assessment is to be conducted with the intent of better serving society as a whole (Alpha needs assessment).	The needs assessment substantiated the assessor's personal idea. (Findings #19, 20) The needs assessment was focused almost exclusively within the immediate context and upon sources similar to the assessor. (Findings #3,4,5,6,7)

Argyris and Schön's conceptual framework describes how fundamental changes that are necessary to long run effectiveness grow out of changes in the governing variables and existing norms. They call these changes "double loop learning." The findings suggest the participants' needs assessments resulted in single loop rather than double loop learning. Assessors in this study began with a particular problem in mind and had a preferred solution. Assessors then conducted their needs assessments in ways that were less likely to reveal other problems or lead to new or unusual solutions. Assessor choices as to how data was collected, the sources from which data was collected, and the ways the data was analyzed made it likely that only small adjustments, also known as single loop learning, would occur.

In summarizing Argument Two, participants practiced a theory-in-use that was different from their espoused theory of needs assessment (leading to Conclusion 1). Their theory-in-use approximated the governing variables present in Argyris and Schön's Model I, and was likely to result only in minor modification to the status quo, or single loop learning (leading to Conclusion 3b). Unfortunately, the disparity

between the espoused theory and theory-in-use of needs assessment creates conflicts and inhibits effectiveness. This concern is discussed in Arguments Three and Four to explain Conclusions 2 and 3a.

Argument Three: Differences between the espoused theory and theory-in-use of needs assessment create conflict. Argyris and Schön assert that inconsistencies between espoused theory and theory-in-use lead to conflict. People are not aware of, and consequently not able to detect, discrepancies between what they think they are doing and their actual behavior. Therefore, when intended outcomes do not occur, they are unable to accurately pinpoint the problem and cannot make improvements. By applying the conceptual framework to the study findings, the conflicts between the espoused theory and the theory-in-use of needs assessment are made apparent and can be explained.

Argyris and Schön describe how the Model I theory-in-use acts as a self fulfilling prophesy, or is "self-sealing." As long as people behave according to the governing variables in the Model I theory-in-use, they will continue to confirm their own ideas and maintain Model I governing variables. Similarly, participants in the present study indicated a reluctance to change their existing behaviors and beliefs.

Even when participants were made aware of the conflict between their espoused theory and theory-in-use of needs assessment, they did not address the conflict. A particularly salient example occurred the last two days the investigator was in contact with all the participants. As described in Finding #19, the investigator showed individual participants tables of data documenting the lack of changes to curricula. Participants were visibly surprised when shown concrete examples of how their projects had changed little as a result of the needs assessment. However, in these private conversations, after expressing surprise, the participants acknowledged that there had been no change in their topic and, at most, minor adjustments to content and instructional methods were made as a result of performing the needs assessment. Nevertheless, in the same two-day period, participants also presented their curricula in a public forum and made claims about needs assessment that contradicted this discovery. The participants presented their curricula in ten minute presentations at a conference. Thirteen of the fourteen participants used a portion of their ten minutes to talk about needs assessment. In each of these thirteen instances, participants described their needs assessment process and said that it had helped them discover the problem and design an appropriate solution. In other words, participants acknowledged their theory-in-use of needs assessment in private discussions, but presented the differing idealized espoused theory of needs assessment publicly.

The conceptual framework suggests that ignoring this disparity was expedient and, in the short term, useful for the participants. As described in Argument Two, they had conducted needs assessment according to their theory-in-use, which had allowed

them to confirm their original ideas. Yet, participants appealed to the espoused theory of needs assessment to give their needs assessment results and, by extension, their curricula, legitimacy.

Another example of how participants' theory-in-use of needs assessment is self-sealing was illustrated in Finding #18. When describing the conditions under which they would conduct needs assessments again, the participants who had conducted the most comprehensive needs assessments stipulated that, in the future, they would not use as many data collection methods, contact as many sources, or formally analyze and write up the data. By further restricting the data collection, analysis methods, and the range of sources contacted in future needs assessments, participants would be even less likely to discover problems or solutions that differed from their own ideas.

The problems with the practice of needs assessment described in the literature can be attributed to conflicts between espoused theory and theory-in-use. Problems described in the literature include 1) focusing on needs of the individual or organization rather than on what would benefit society as a whole (Roth, 1978; Witkin, 1984; Kaufman, 1977a, 1977b, 1989), and 2) failure of the assessor to define "need" (Roth, 1977,1978; Sleezer, 1992). The conceptual framework suggests an explanation for why these problems exist. These "problem" areas are actually points at which the espoused theory and theory-in-use of needs assessment conflict.

It is even possible that some of these "problems" continue to exist because resolving them would highlight conflicts between the espoused theory and theory-in-use of needs assessment and force changes. For example, conducting needs assessment according to a clear operational definition of "need" would make the present theory-in-use impracticable. A clear definition of "need" would include whose needs were being considered and the criteria by which needs were to be prioritized. This would necessitate the inclusion of stakeholders regardless of whether or not that population's opinions were likely to be in agreement with the assessor's. Measuring need according to a particular approach, discrepancy based for example, would mean that other needs might be prioritized above the need on which the assessor prefers to work. Thus, conducting a needs assessment according to a clear definition of need would make it difficult for assessors to substantiate their own ideas. However, as long as the disparity between the espoused theory and theory-in-use continues, assessors will be able to use the needs assessment to validate their preferred solution, yet still appeal to the espoused theory to claim higher ideals.

Also, the conceptual framework provides an explanation of why there are disagreements over terminology and so many divergent models of needs assessment exist. The multitude of terms and models may be endemic to this conflict between espoused theory and theory-in-use. For example, Kaufman's (1985) insistence over the difference between "needs assessment" (which he describes as problem

identification and prioritization) and "needs analysis" (which he describes as the search for causes and solutions), can be seen as his attempt to distinguish between espoused theory (needs assessment identifies problems) and theory-in-use (needs analysis begins with a given problem).

This conflict between espoused theory and theory-in-use limits the effectiveness of needs assessment. Although, in the short term, it is "easier" to ignore conflicts between espoused theory and theory-in-use, effectiveness is greatly diminished in the long term. One may ask, if needs assessment, as currently practiced, results in few changes to the original idea, is it any wonder that needs assessment is often skipped? On some level, didn't each of the assessors know that the needs assessment had been used to *legitimize or refine* rather than *discover* the problem and solution? This conflict appears to have 1) complicated the teaching of needs assessment, 2) made it more difficult to conduct a needs assessment (especially as a novice), and 3) brought needs assessment results into question.

The limited effectiveness of needs assessment is evident in Conclusion 3a, which states that the benefits of needs assessment perceived by the participants differed from those described in the literature. Although participants espoused benefits of needs assessment in Finding #17 that more closely matched the theory espoused in the literature (needs assessments are useful for collecting ideas and gaining support), in Finding #18, the participants' contrasting theory-in-use for the benefits of needs assessment was evident. Participants stressed the usefulness of needs assessment for gaining support far over collecting ideas. They did not perceive problem finding or solution identification to be a benefit of needs assessment, except in situations in which they were unfamiliar with the content. And even in cases in which they would choose to do a needs assessment in the future, their desire to simplify the process by using fewer methods and contacting fewer sources suggests they did not perceive that the benefits of needs assessment justify much effort.

Ultimately, failure to resolve these conflicts substantially weakens needs assessment. As described in Finding #20, participants had a preferred problem and solution in mind, which changed little over the course of the needs assessment. As stated in Conclusion 3b: the results of the needs assessments in the present study were not as far reaching and change stimulating as suggested in the literature. The participants who expressed the most disappointment with the outcomes of needs assessment were those who had put the most time and energy into the process. They were frustrated when the process did not deliver what the espoused theory had promised. Max, who spent the greatest amount of time on his needs assessment, spoke openly with the investigator about his disappointment. Max felt that the benefits had not justified the energy he had invested in the needs assessment. The field notes capture what transpired later in the same conversation:

> Max leaned forward, and gestured, rhythmically pointing his index finger to the table as he spoke the following with emphasis. "Like for me, before I order any [medical] test, I ask myself, 'Could I learn something from this that would make me change my mind?' And if my answer is 'No,' I don't order it."
>
> I said, "That sounds like the same philosophy as you had about needs assessment. It isn't that useful to you because you didn't change much because of it."
>
> Max: "Yes. Exactly."

In summary, a case is made in Argument Three for how the existing theory-in-use of needs assessment is self-sealing. Evidence shows that assessors find it expedient to overlook the existing conflict between espoused theory and theory-in-use. This conflict may also account for many of the problems with needs assessment as cited in the literature and complicate the teaching of needs assessment. Ultimately, this conflict greatly decreases the effectiveness of needs assessment. The fourth and final argument will suggest how espoused theory and theory-in-use may be reconciled.

Argument Four: There may be a way to bring the espoused theory and theory-in-use of needs assessment into agreement. The espoused theory of needs assessment is well documented in the literature. This study has made a start in documenting the theory-in-use of needs assessment. Recommendations from Argyris and Schön's experience may provide the next steps in working to bring the espoused theory and theory-in-use of needs assessment into agreement so that the effectiveness of needs assessment can be enhanced.

Argyris and Schön (1974) propose how to redesign professional education. Their suggestions include clarifying the areas of crisis by documenting the conflicts between espoused theory and theory-in-use, and working on transforming theories-in-use to more closely approximate Model II. How needs assessment is taught and practiced may be reformed by Argyris and Schön's recommendations on how to make transitions between the two models. They assert that two key factors in making this transition are 1) repeatedly examining the theory-in-use through publicly testing assumptions and 2) being open to changing behavior.

However, we should not automatically assume that all the changes must be made in the theory-in-use of needs assessment. It is also possible that adjustments should be made to the espoused theory to make it more practicable in "real world" settings. For example, needs assessment, as currently espoused, describes a process for problem and solution *finding*. It completely ignores that, at least in the cases documented in the present study, assessors do not approach the task as a "tabula rasa." Similar to Simon's (1945) description of administrative decision making, before

beginning the prescribed needs assessment, they thought about the situation, perhaps conducted some exploratory questioning, and began to employ their own assumptions. An espoused theory of needs assessment needs to take these aspects of human nature into account. In considering the prior knowledge and decision making of the assessor, the needs assessment process might, under certain circumstances, be better used for problem and solution *refining*.

In addition, the present study's findings on helping and hindering factors suggest other barriers to successfully conducting a needs assessment in actual situations. Argyris and Schön acknowledge that Model II is difficult to implement in existing settings. They contend that "organizations tend to create learning systems that inhibit double-loop learning that calls into question their norms, objectives, and basic policies" (1978, p.4). It would be especially difficult for unprepared assessors to deal with this resistance. Issues such as perception of self efficacy, the fact that change implied by needs assessment may be threatening to others, and that the assessor may have little personal power in the organization must be addressed in an espoused theory. The findings related to the second research question may be used to design future instruction on needs assessment that prevents or ameliorates some of the hindering factors, and begins to create guidelines for periodically checking for conflicts between espoused theory and theory-in-use.

Summary of conclusions and arguments. In Arguments One and Two the differences between the espoused theory and theory-in-use for needs assessment were described. These arguments support Conclusions 1 and 3b, which state that the needs assessment procedures prescribed in the literature (the espoused theory) are different from how they were actually carried out in the real world (the theory-in-use of needs assessment), and that the needs assessments carried out by the participants of the present study did not accomplish what is claimed in the literature. As described in Argument Three, Conclusion 2 states that the espoused theory of needs assessment presented in the literature, by the fellowship, and by participants focuses on the ideal; whereas the theory-in-use of needs assessment, as observed in participants' behaviors, is, by necessity, much more practical. Evidence was also presented in Argument Three to show how this conflict is detrimental. Not only did the participants perceive fewer and less important benefits from conducting a needs assessment (Conclusion 3a), but the results of the needs assessments in the present study were not as far reaching and change stimulating as suggested in the literature (Conclusion 3b). The fourth and final argument suggested how espoused theory and theory-in-use could be brought into agreement.

General recommendations for assessors and those training them

As described in Conclusion 2, needs assessment, as currently taught, does not adequately prepare the assessor to effectively and efficiently perform needs assessments. According to the conceptual framework, this is because the *espoused theory* of needs assessment is what is taught, and assessors are not presented with strategies to become aware of their *theory-in-use* of needs assessment and to monitor the two theories for conflict. The conflict is essentially between the ideal, as captured in the espoused theory, and the practical, as demonstrated in the theory-in-use of needs assessment. Both viewpoints must be considered if the effectiveness of needs assessment is to be improved.

Table 7 is a compilation of suggestions from the study findings which demonstrate how we can better prepare practitioners to effectively and efficiently conduct needs assessments on their own. The general recommendations listed in Table 7 address two central themes in an effort to bring the espoused theory and theory-in-use of needs assessment into agreement. First, needs assessment must be designed and taught in a way that works in real-life situations which contain a variety of constraints and necessitate sudden changes in strategy. Examples of these constraints include limited time available, delays, and unexpected problems. And second, needs assessment training must also equip assessors with other essential skills. Essential skills described in the present study include time management, knowledge of change agentry, and bias control in data collection.

Many of the recommendations listed in Table 7 have been incorporated into the training situation with positive results. In the year following the study, adjustments were made so that the espoused theory of needs assessment more accurately prepared novice assessors for conducting one in an actual situation. Components also were added that required more rigorous examination of assessors' theories-in-use of needs assessment. Changes were made in the needs assessment handout, workshop content, and assignment. Examples of changes included: 1) stressing the need to acknowledge that assessors had already begun to think about the situation and were likely to have a problem and preferred solution in mind, which they needed to document and control; 2) warnings to expect time delays and tips on how previous trainees had handled time constraints; 3) a change in workshop exercises from trainees receiving input on their needs assessment plans from staff, to that of peers listening and advising each other with staff listening in; and 4) changes in the assignment criteria to specifically require detailed reporting of data collection and analysis methods.

Table 7

General Recommendations for the Teaching and Practice of Needs Assessment

Finding #	Recommendation
2	☛ Take a block of time to plan NA (then can do flexibly in small pieces as time allows.--Finding #11)
3,4,5,6,7	☛ Check for biases between sources and data collection methods ☛ Seek diversity in sources as to: similarity to assessor's role and both inside and out of immediate context
8, 16	☛ Acknowledge concept may be difficult, will learn by doing ☛ Point out that NA is not that different from everyday problem solving/decision making
9	☛ Prepare novices for time demands, to expect and plan for delay
10	☛ Check motivation level, too high, too invested, too low, don't care (be aware of how motivation level influences NA)
11	☛ Teach key skills along with NA: time management, change agentry, data collection, and analysis bias controls
12	☛ Teach how to start wide and gradually focus (for those who have trouble narrowing) ☛ Urge to periodically share needs assessment discoveries with a person from outside the context (they will broaden focus)
13	☛ Create readily available resources that can be referred to in stages (Handouts work well, but also need a person to consult not just while learning about NA, but as doing own. This could possibly be same as person suggested just above.)
14,15	☛ Acknowledge organizational constraints and show how to overcome with creative thinking (internal control) and flexibility
17	☛ Show how contacting multiple sources has two, not just one, benefits/purposes, be clear on which you are doing with each source
18	☛ Acknowledge NAs may be conducted for different purposes (if SME, not to discover problem, but to verify and refine) ☛ Whether SME or novice, need to document WHY doing NA
1,19,20	☛ Acknowledge that assessors have already thought about the problem and its solution, and design ways to document this so that it can be controlled (as simple as writing down before begin, i.e. document preexisting ideas before beginning) ☛ Devise a method to see where and if changes occur as a result of needs assessment. For example in developing curricula: in topic (big), in content, in instruction? And how big changes were. Follow through by consulting NA in later evaluation.

IN CONCLUSION

Argyris and Schön (1974) hypothesize that there are several problems in professional education. First, they mention "incongruities between espoused theories and theories-in-use" (p. 174). They present the profession of education as a prime example of the theory being taught (an espoused theory) diverging widely from the reality of practice (the theory-in-use). Argyris and Schön then go on to say that in order to begin to resolve differences between espoused theory and theory-in-use, the theory-in-use must be explicitly stated. They say that since people often are not aware of this conflict and will state their espoused theories when asked, the only way to develop a theory-in-use is by directly observing behavior. This is what the present study attempted for the topic of needs assessment.

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